Remarks

Claims 22, 26, 27, 29, and 30 have been amended. Claim 32 has been deleted. New claims 33-39 have been added. Claims 22, 25-31, and 33-39 are pending.

Examination and reconsideration of the application as amended is requested.

Applicants have amended claim 22 by deleting aluminum as one of the multivalent cations. Applicants have amended claims 26 and 27 to correct their dependency. Applicants have amended claim 29 by deleting the aluminum salts listed therein. Applicants have amended claim 30 so to better clarify the claim.

Applicants respectfully request entry of this Amendment After Final Rejection. The amendments to the claims raise no new issues that would require further consideration and no issues of new matter are raised as basis is provided in the specification for each new limitation. The Amendment places the application in better form for appeal. The Amendment was not earlier presented because it was believed that previously presented arguments and amendments were sufficient to overcome the grounds of rejection.

§ 103 Rejections

Claim 22 remains rejected under 35 USC § 103(a) as being unpatentable over Sato (U.S. Patent No. 6,096,418), in view of Shaw-Klein (U.S. Patent No. 6,110,601) and TYVEK® product bulletin.

Sato discloses an ink recording medium having a base material, and an ink receiving material on the base material. The ink receiving material contains a binder and fine porous polysaccharide particles exposed to the surface. The polysaccharide particles are made by crosslinking a water soluble polysaccharide with a polyvalent salt to make the resulting salt water insoluble (column 3, lines 22-33 and 53-60, and column 4, lines 7-17).

Shaw-Klein discloses an ink recording element having a water-absorbing layer and an image recording layer containing a colloidal oxide and pigment dispersed in an organic binder. Shaw-Klein further discloses that the invention may contain a small amount of calcium chloride, barium sulfate, or aluminum chloride. Shaw-Klein also discloses that non-ionic, hydrocarbon, or

fluorocarbon surfactants or cationic surfactants may be used in the ink-receiving layer. TYVEK® product bulletin discloses nonwoven sheet materials.

The combination of the disclosures of Sato, Shaw-Klein, and TYVEK® product bulletin as suggested by the Patent Office would not result in Applicants' invention as claimed since the resulting article would contain non-soluble polyvalent salt or calcium chloride, barium sulfate, or aluminum chloride as the polyvalent salt. Applicants' polyvalent salt is water-soluble and includes only certain calcium salts and does not include barium sulfate or aluminum chloride. For at least these reasons, the combination of the above references as suggested by the Patent Office do not teach or suggest the invention as now claimed. Accordingly, Applicants respectfully request that the above rejection of claim 22 be withdrawn.

Claims 22, 25-29, and 32 remain rejected under 35 USC § 103(a) as being unpatentable over Kovacs (U.S. Patent No. 6,206,517), in view of Shaw-Klein. Claim 32 has been cancelled.

Kovacs discloses an ink recording element having a support and a cross-linkable polymer of gelatin or acetylated poly(vinyl alcohol) and a mordant (image receiving layer). Kovacs discloses that multivalent inorganic slats are used to crosslink the above listed cross-linkable polymers (column 3, lines 5-14). Kovacs discloses that the image receiving layer may also optionally contain matting agents and surfactants such as non-ionic, hydrocarbon, cationic, or fluorocarbon surfactants. Shaw-Klein has been discussed above.

Assuming the requisite motivation exists to combine Kovacs and Shaw-Klein as suggested by the Patent Office, the resulting combination would not result in the claimed invention as currently claimed since Applicants do not claim calcium chloride, barium sulfate, or aluminum chloride as disclosed in Shaw-Klein. Thus, the combination of the above references if combined, would not result in the invention as claimed. Accordingly, for at least this reason, Applicants respectfully request that the above rejection of claims 22 and 25-29 be withdrawn.

Claims 30 and 31 remain rejected under 35 USC § 103(a) as being unpatentable over Kovacs, in view of Shaw-Klein in further view of Hasegawa (U.S. Patent No. 4,954,395).

Hasegawa adds nothing substantive to the teachings of either Kovacs or Shaw-Klein to cure

the defects described above. Accordingly, Applicants respectfully request that the above rejection of claims 30 and 31 be withdrawn.

Claims 22, 25, 26, 28, 29, and 32 remain rejected under 35 USC § 103(a) as being unpatentable over Wallace (U.S. Patent No. 4,889,765) in view of Shaw-Klein. Claim 32 has been cancelled.

Wallace discloses an ink-receptive coating containing olefin copolymer containing neutralized pendant acid groups and a 2-oxazoline polymer and may contain a hydrophilic latex (acrylic acid/acrylonitrile/styrene terpolymers, anionic surfactant and water) and that spunbonded olefin and metal are not receptive to aqueous inks.

Shaw-Klein discloses an ink recording element having a water-absorbing layer and an image recording layer containing a colloidal oxide and pigment dispersed in an organic binder. Shaw-Klein further discloses that the invention may contain a small amount of calcium chloride, barium sulfate, or aluminum chloride. Shaw-Klein also discloses that non-ionic, hydrocarbon, or fluorocarbon surfactants or cationic surfactants may be used in the ink-receiving layer.

Assuming the requisite motivation exists to combine Wallace and Shaw-Klein as suggested by the Patent Office, the resulting combination would not result in the claimed invention as currently claimed since Applicants do not claim calcium chloride, barium sulfate, or aluminum chloride as disclosed in Shaw-Klein. Thus, the combination of the above references, if combined, would not result in the invention as claimed. Accordingly, for at least this reason, Applicants respectfully request that the above rejection of claims 22, 25, 26, 28, and 29 be withdrawn.

New Claims

New claim 33 finds support in current claims 22 and 29. Applicants have rewritten a new independent claim using the aluminum salts from previous claim 29. New claims 34-39 find support from dependent claims 25-28 and 30-31. New claims 33-39 are believed to be allowable over the art for the reasons stated above for claims 22 and 25-31.

In view of the above, it is submitted that the application is in condition for allowance. Reconsideration of the application is requested. Allowance of claims 22 and 25-31, as amended, and new claims 33-39 at an early date is solicited.

Respectfully submitted,

25 October, 2002
Date

By: _____
Scott A. Bardell, Reg. No.: 39,594
Telephone No.: 651-736-6935

Office of Intellectual Property Counsel
3M Innovative Properties Company
P.O. Box 33427
St. Paul, MN 55133-3427
Facsimile No.: 651-736-3833

Version With Markings to Show Changes Made

22. (Thrice Amended) An ink receiving medium comprising:

a nonwoven macroporous substrate having a fluid management system comprising a surfactant and having a pigment management system comprising a water-soluble multivalent metal salt having a metal cation selected from the group consisting of Mg, Ti, Cr, Zr, Fe, Cu, Zn, Ta, **[Al,]** Ga, Sn, and combinations thereof in contact with surfaces of macropores of the substrate therein, wherein the nonwoven macroporous substrate comprises fibers selected from the group consisting of cotton, flax, hemp, ramie, burlap, wool, silk, rayon, acrylic, polyolefin, polystyrene and block copolymers thereof with butadiene, polyester, polyamide, polyarylsulfones, poly(vinyl alcohol), poly(ethylene vinyl acetate), polyacrylates, polycarbonates, cellulosic polymers, polyimides, polyurethanes, and combinations thereof.

26. (Amended) The ink receiving medium according to claim **[24]** **22** wherein said surfactant is non-ionic, cationic, anionic, or a combination of anionic and non-ionic surfactants.

27. (Amended) The ink receiving medium according to claim **[24]** **22** wherein said surfactant is selected from fluorochemical, silicone and hydrocarbon based surfactants, and combinations thereof.

29. (Twice Amended) The ink receiving medium according to claim 22 wherein said water-soluble multivalent metal salt is **[aluminum sulfate, aluminum nitrate,]** gallium nitrate, ferrous sulfate, chromium sulfate, zirconium sulfate, magnesium sulfophthalate, copper sulfophthalate, zirconium sulfophthalate, zirconium phthalate, zinc sulfate, zinc acetate, zinc chloride, calcium bromide, magnesium sulfate, magnesium chloride, **[aluminum sulfophthalate, aluminum sulfoisophthalate,]** or combinations thereof.

30. (Amended) The ink receiving medium according to claim 22 wherein **[the fluid management system comprises surfactant and]** the surfactant is a hydrocarbon based anionic surfactant.